

1 connects it to the suction pump. A depression of a few millimetres of mercury draws fluid from the central container, after a few seconds' delay. Throughout the operation, the rate of sampling remains proportional to the flow-rate of fluid in the channel so that the contents of the bottle are a representative average sample of the fluid flowing past during the period of sampling. When this period has elapsed, the control system disconnects bottle n° 1 from the suction pump, and regulates the pressure in the bottle to match the pressure above the central container. The same operation begins immediately thereafter for bottle n° 2.

In a sampler with 24 bottles on a circular base, as partly illustrated in FIG. 2, the control system comprises two programs, for hourly or two-hourly sampling. Other programs can be added.

The flow-rate of the suction pump can be adjusted in various ways, either intermittently, by changing the diameter or number of the flexible pipes, or continuously, by regulating the speed of movement of the rollers. If the apparatus has been suitably assembled, the flow-rate can be adjusted by altering the diameter or number of pipes during sampling, while the other method is normally used when sampling is subordinated to readings from a flow-meter operating continuously in the channel.

When stored, the samples are protected against any risk of further liquid entering or being siphoned off during storage, by the aperture on the sampling tube, beneath the bottle stopper and above the maximum level of the fluid samples.

With a programme involving simultaneous operation of equal groups of electro-valves, the number of identical samples obtained during one sampling operation is the same as the number of electro-valves in each group, whereas division of a single sample would result in different sub-samples, because of the segregations that are bound to occur. This arrangement also allows suitable reagents to be placed in the bottles before sampling, in order to stabilize certain unstable components of the effluents, which it would otherwise be difficult to trace and analyse later.

What is claimed is:

1. An apparatus for continuously taking average samples of a fluid flowing in a channel, comprising a container for holding fluid to be sampled, pump means connected to feed fluid to be sampled at a uniform flow rate from a sampling point of said channel to said container, overflow spout means connected to empty fluid from said container back to said channel at a point below said sampling point in the direction of flow of fluid in said channel, a plurality of sampling bottles, an auxiliary fluid in said bottles, said auxiliary fluid having a density lower than the density of said fluid to be sam-

pled and which will not mix with nor effect the fluid to be sampled in any manner, a suction pump having an adjustable uniform flow rate, tube means connected between said suction pump and the upper portion of each bottle, said tube means terminating above the maximum upper level to which the respective bottle is to be filled during a sampling operation, electro-valve means connected to control flow of fluid in said tube means, programmed clock means connected to control said electro-valve means, and separate siphon tubes connecting each of said bottles, at a point near the bottom thereof, to said container, whereby suction applied to each bottle during a filling operation draws fluid to be sampled from said container to the respective bottle, and the auxiliary fluid in the respective bottle consequently occupies the upper portion of the respective bottle.

2. The apparatus of claim 1 wherein the siphon tube connected between each said bottle and said container has an aperture above the maximum upper level reached by a sample of fluid in each said bottle.

3. The apparatus of claim 1 wherein each said bottle is connected to said suction pump by a separate electro-valve in the respective tube means, and each said bottle is connected to said container by a separate siphon tube.

4. The apparatus of claim 1 wherein said programmed clock is connected to simultaneously control a plurality of electro-valves for simultaneously collecting average samples of said fluid to be sampled in a plurality of said bottles.

5. An apparatus for continuously sampling a fluid flowing in a channel, comprising a container for holding the fluid to be sampled, pump means for continuously directing fluid from a sampling point of said channel to said container at a uniform rate, overflow means for feeding back fluid from said container to said channel at a point below said sampling point in the direction of flow of fluid therein for maintaining the level of fluid in said container, a plurality of sealed bottles, suction pump means, a separate electro-valve for each said bottle, tube means connecting the upper portion of each said bottle by way of the respective electro-valve to said suction pump means, separate siphon means coupled between the bottom portion of each said bottle to said container, such siphon means having apertures above the maximum level within each bottle to which the respective bottle is to be filled during a sampling operation, and an auxiliary fluid in each bottle, said auxiliary fluid having a density less than the density of said fluid to be sampled and being immiscible with and chemically inert with respect to said fluid to be sampled.

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